

LONE STAR HEALTHY STREAMS

Keeping Texas streams clean



The Lone Star Healthy Streams program recommends moving livestock from one area to another over time to prevent fecal material from accumulating in creek pastures. Photo from Crestock Corporation.

Think contaminated water only occurs in developing countries? Even in the United States, high levels of bacteria in some water bodies make them potentially unsuitable for recreation.

About 300 water bodies in Texas contain excess bacteria. These bacteria come from many sources such as wastewater plants, septic systems, livestock operations and wildlife.

To combat excess bacterial levels in recreational water sources in Texas, the Texas Water Resources Institute (TWRI), Texas A&M AgriLife Research and the Texas A&M AgriLife Extension Service combined forces in creating the Lone Star Healthy Streams (LSHS) program.

“I believe the LSHS project produced some very good information to help stakeholders protect their water resources,” said Curtis Scrivner, a landowner involved in preliminary LSHS activities.

According to Larry Redmon, leader of the LSHS program, livestock producers can more easily make wise choices for reducing pollution originating on their operations if they know the benefits of clean water to agricultural operations, the current laws and policies on water quality, the ways that bacteria can enter water, and the range of solutions that are available for them to reduce water quality problems. The LSHS program is designed to educate landowners on these topics. ➡



Through their partnership, TWRI, AgriLife Research and AgriLife Extension have successfully completed the first stage of the LSHS program and have begun the second.

Stage I

Stage I focused on evaluating best management practices (BMPs) designed to reduce bacterial contamination of water bodies, said Kevin Wagner, TWRI's associate director. This research, led by Wagner, was carried out at both private ranches and established research centers such as the U.S. Department of Agriculture's field site in Riesel, the Texas A&M University Department of Animal Science's Beef Cattle Systems Center near College Station, and the Welder Wildlife Refuge in Sinton.

"At these ranches and research centers, both traditional and novel, or innovative, BMPs were implemented and their effectiveness evaluated so that the most successful techniques could be identified," Wagner said. "This study provided us with a good idea of which management techniques worked to reduce bacteria levels and which didn't.

"We highly recommend rotational grazing," Wagner said. The method requires moving livestock from one area to another over time. This prevents fecal material from accumulating in creek pastures during rainy seasons and ending up in streams.

"Results showed that when alternative off-stream water was provided, the amount of time cattle spent in the creek was reduced 43 percent," Wagner said.

Alternate water sources allow animals to drink at facilities away from a stream, reducing the amount of feces that enter the stream.

He said that while Stage I is technically over, research will continue to explore new BMP techniques that will benefit both streams and landowners.

Stage II

Based on information gathered in Stage I, groups of research scientists, resource conservation agencies and producers collaborated to compile the LSHS manuals, which include BMPs identified in Stage I.

"Stage II focuses on education," said Jennifer Peterson, LSHS statewide coordinator. "For each bacterial contributor, we created a manual and a presentation outlining BMPs that are operation-specific."

The program published manuals for poultry, beef cattle, feral hogs, horses and dairy cattle. Each manual has been endorsed by natural resource agencies and industry associations. For example, the dairy cattle program has been endorsed by the Natural Resource Conservation Service (NRCS) and the Texas Association of Dairymen. The manuals are available both online and in hard copy.

"The management practices identified in the Lone Star Healthy Streams manuals are generally practices that can both reduce nonpoint source contributions to lakes and streams and improve an operation's bottom line," said Jay Bragg, associate director of commodity and regulatory activities at the Texas Farm Bureau.

The manuals include information about Texas water quality and sources of financial assistance for BMP implementation. Although not the focus of the

The practices listed in the Lone Star Health Streams manuals will allow livestock owners and landowners to further protect Texas waterways. Photo from Crestock Corporation.





There are many BMPs that can help keep Texas waters safe and clean!

Beef Cattle: Rotate cattle to upland pastures during wet periods; graze creek pastures during dry periods. Promote loafing, drinking and grazing away from creeks using additional shade, alternative water supplies and proper grazing management.

Dairy Cattle: Construct a waste treatment lagoon by building an embankment and/or excavating a pit or dugout to biologically treat waste.

Feral Hogs: Although they require more effort to install and maintain, using corral traps is extremely effective in reducing feral hog numbers, especially in conjunction with other control methods.

Horses: Maintain filter strips—areas of herbaceous vegetation established between a water body and cropland, grazing land or disturbed land—to remove sediment, bacteria, organic material, nutrients and chemicals resulting from overland flow.

Poultry: An on-farm composting system using windrows, static piles and in-vessel composting can effectively reduce pathogens to levels that are acceptable in organic soil amendments.

LSHS program, the BMPs listed in the manuals will allow livestock owners and landowners to further protect Texas waterways from runoff that contains sediments, nutrients and pesticides. Examples of BMPs found in the manuals include rotational grazing and provisions for alternate water supplies for livestock.

“Our next step is a statewide educational program that educates livestock producers and landowners about these best management practices,” Peterson said.

“We recently finished writing and publishing our curriculum and have also developed an online course for the program,” she said. “We are in the process of scheduling programs around the state.”

In the coming months, programs will be made available to landowners in areas that have identified the source of bacterial impairment in their watershed. AgriLife Extension will conduct programs for landowners on BMP implementation.

“The agricultural community can choose to regulate itself through stewardship and conservation practices rather than have the solutions determined by those who may not understand the industry,” Redmon said. “It is important for landowners to become involved and make a difference in protecting our state’s most vital resource.”

The LSHS program has received support on the importance of education and BMP implementation not only from scientists, but also from farmers and landowners.

“Local demonstration projects may be the most effective way to demonstrate the benefits of these management practices,” Bragg said.

“I think some good information came from the Lone Star Healthy Streams project—given they wrote a prescription for the entire state and the state is so diverse,” Scrivner said.

Additional program partners include the Independent Cattleman’s Association of Texas, Texas and Southwest Cattle Raisers Association, Texas Wildlife Association, Texas Association of Dairymen, Texas Horse, Texas Poultry Federation, Texas Pork Producers Association and Texas Parks and Wildlife Department.

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